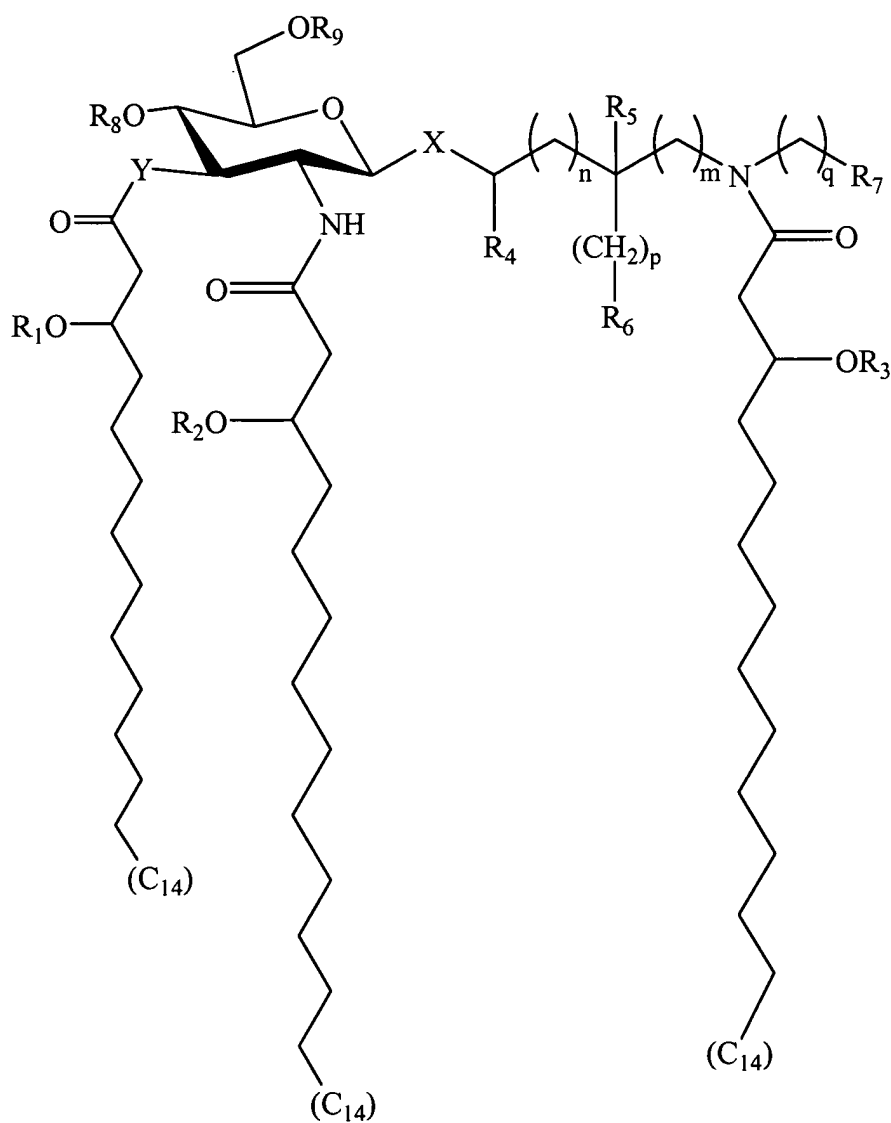


This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1.(currently amended) ~~An immunoeffector~~ A pharmaceutically acceptable salt of a
compound having the following structure:



wherein, X is selected from the group consisting of O and S at the axial or ~~equatorial~~ equatorial position; Y is selected from the group consisting of O and NH; n, m, p and q are integers from 0 to 6; R₁, R₂ and R₃ are the same or different and are ~~normal~~ fatty acyl residues having from 1 to about 20 carbon atoms and where one of R₁, R₂ or R₃ is optionally hydrogen; R₄ and R₅ are the same or different and are selected from the group consisting of H and methyl; R₆ and R₇ are the same or different and are selected from the group consisting of H, hydroxy, alkoxy, phosphono, phosphonooxy, sulfo, sulfooxy, amino, mercapto, cyano, nitro, formyl and carboxy, and esters and amides thereof; and R₈ and R₉ are the same or different and are selected from the group consisting of phosphono and H, and at least one of R₈ and R₉ is phosphono.

2.(currently amended) The ~~compound~~ salt of claim 1, wherein R₆ is carboxy.

3.(currently amended) The ~~compound~~ salt of claim 2, wherein X is O; Y is O; n, m, p and q are 0; R₁, R₂ and R₃ are normal fatty acyl residues having 10 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *S* configuration.

4.(currently amended) The ~~compound~~ salt of claim 2, wherein X is O; Y is O; n, m, p and q are 0; R₁, R₂ and R₃ are normal fatty acyl residues having 12 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *S* configuration.

5.(currently amended) The ~~compound~~ salt of claim 2, wherein X is O; Y is O; n, m, p and q are 0; R₁, R₂ and R₃ are normal fatty acyl residues having 10 carbon atoms; R₄,

R₅ and R₇ are H; R₈ is phosphono; R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *R* configuration.

6.(currently amended) The ~~compound~~ salt of claim 2, wherein X is O; Y is O; n, m, p and q are 0; R₁, R₂ and R₃ are normal fatty acyl residues having 8 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *S* configuration.

β 1 7.(currently amended) The ~~compound~~ salt of claim 1, wherein R₆ is H.


8.(currently amended) The ~~compound~~ salt of claim 7, wherein X is O; Y is O; n is 2; m, p and q are 0; R₁, R₂ and R₃ are normal fatty acyl residues having 14 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; and R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration.

9.(currently amended) The ~~compound~~ salt of claim 7, wherein X is O; Y is O; n is 1, m and p are 0; q is 1; R₁, R₂ and R₃ are normal fatty acyl residues having 10 carbon atoms; R₄ and R₅ are H; R₇ is carboxy; R₈ is phosphono; R₉ is H; and R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration.

10.(currently amended) The ~~compound~~ salt of claim 7, wherein X is O; Y is O; m, n, p and q are 0; R₁, R₂ and R₃ are normal fatty acyl residues having 14 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; and R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration.

11.(currently amended) The ~~compound~~ salt of claim 7, wherein X is O; Y is O; m, n, p and q are 0; R₁, R₂ and R₃ are normal fatty acyl residues having 10 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; and R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration.

12.(currently amended) The ~~compound~~ salt of claim 7, wherein X is O; Y is O; m, p and q are 0; n is 1; R₁, R₂ and R₃ are normal fatty acyl residues having 14 carbons; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; and R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration.

 13.(currently amended) The ~~compound~~ salt of claim 1, wherein R₆ is hydroxy.


14.(currently amended) The ~~compound~~ salt of claim 13, wherein X is O; Y is O; m, n and q are 0; p is 1; R₁, R₂ and R₃ are normal fatty acyl residues having 12 carbon atoms; R₄ and R₅ are H; R₇ is H; R₈ is phosphono; and R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *S* configuration.

15.(currently amended) The ~~compound~~ salt of claim 13, wherein X is O; Y is O; m and q are 0; n and p are 1; R₁, R₂ and R₃ are normal fatty acyl residues having 10 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *S* configuration.

16.(currently amended) The ~~compound~~ salt of claim 13, wherein X is O; Y is O; m, n and q are 0; p is 2; R₁, R₂ and R₃ are normal fatty acyl residues having 10 carbon

atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *S* configuration.

17.(currently amended) The ~~compound~~ salt of claim 13, wherein X is O; Y is O; m, n and q are 0; p is 1; R₁, R₂ and R₃ are normal fatty acyl residues having 14 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *R* configuration.

 18.(currently amended) The ~~compound~~ salt of claim 13, wherein X is O; Y is O; m, n and q are 0; p is 1; R₁, R₂ and R₃ are normal fatty acyl residues having 14 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *S* configuration.

19.(currently amended) The ~~compound~~ salt of claim 13, wherein X is O; Y is O; m, n and q are 0; p is 1; R₁, R₂ and R₃ are normal fatty acyl residues having 11 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *S* configuration.

20.(currently amended) The ~~compound~~ salt of claim 13, wherein X is O; Y is O; m, n and q are 0; p is 1; R₁, R₂ and R₃ are normal fatty acyl residues having 10 carbon atoms; R₄, R₅ and R₇ are H; R₈ is phosphono; R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *S* configuration.

21.(currently amended) The ~~compound~~ salt of claim 1, wherein X is O; Y is O; m, n, p and q are 0; R₁, R₂ and R₃ are normal fatty acyl residues having 10 carbon atoms; R₄ and R₅ are H; R₆ is amino carbonyl; R₇ is H; R₈ is phosphono; and R₉ is H; R₁, R₂ and R₃ are each attached to a stereogenic center having an *R* configuration; and R₅ is attached to a stereogenic center having an *S* configuration.

22.(currently amended) The ~~compound~~ salt of claim 1, wherein R₁ is hydrogen.

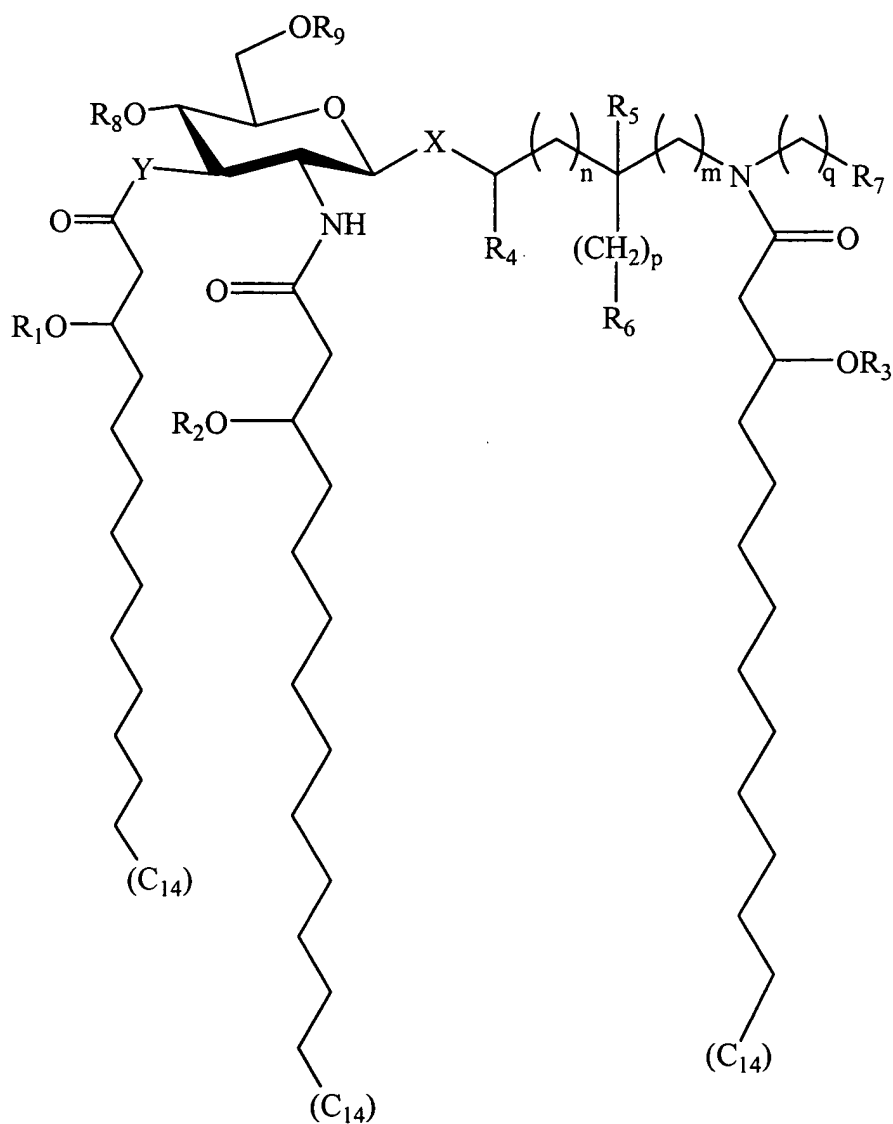
23.(currently amended) The ~~compound~~ salt of claim 1, wherein R₂ is hydrogen.

24.(currently amended) The ~~compound~~ salt of claim 1, wherein R₃ is hydrogen.

25.(currently amended) A method for enhancing the immune response of a mammal comprising administering to the mammal an effective amount of a ~~compound~~ salt of claim 1.

26.(currently amended) A vaccine composition comprising a ~~compound~~ salt of claim 1, an antigen and a suitable carrier.

27.(currently amended) A pharmaceutical composition comprising a pharmaceutically acceptable salt of a compound of claim 1 having the formula:



wherein, X is selected from the group consisting of O and S at the axial or ~~equatorial~~ equatorial position; Y is selected from the group consisting of O and NH; n, m, p and q are integers from 0 to 6; R₁, R₂ and R₃ are the same or different and are ~~normal~~ fatty acyl residues having from 1 to about 20 carbon atoms and where one of R₁, R₂ or R₃ is optionally hydrogen; R₄ and R₅ are the same or different and are selected from the group consisting of H and methyl; R₆ and R₇ are the same or different and are selected from the group consisting of H, hydroxy, alkoxy, phosphono, phosphonooxy, sulfo, sulfoxy, amino, mercapto, cyano, nitro, formyl and carboxy, and esters

and amides thereof; and R₈ and R₉ are the same or different and are selected from the group consisting of phosphono and H, and at least one of R₈ and R₉ is phosphono;
and a pharmaceutically acceptable carrier.

28.(original) The composition of claim 27, wherein said pharmaceutically acceptable carrier is an aqueous composition comprising water and one or more surfactants selected from the group consisting of glycodeoxycholate, deoxycholate, sphingomyelin, sphingosine, phosphatidylcholine, 1,2-Dimyristoyl-sn-glycero-3-phosphoethanolamine, L- α -Phosphatidylethanolamine, and 1,2-Dipalmitoyl-sn-glycero-3-phosphocholine, or a mixture thereof.

29.(original) The composition of claim 28, wherein said one or more surfactant is 1,2-Dipalmitoyl-sn-glycero-3-phosphocholine.

30.(currently amended) The composition of claim 28, wherein the molar ratio of said ~~compound~~ salt to surfactant is from about 10:1 to about 1:25.

31.(currently amended) The composition of claim 28, wherein the molar ratio of said ~~compound~~ salt to surfactant is from about 4:1 to about 1:9.

32.(original) The composition of claim 27, wherein said carrier is a stable emulsion comprising a metabolizable oil, one or more surfactants, an antioxidant and a component to make the emulsion isotonic.

33.(original) The composition of claim 32, wherein said stable emulsion comprises 1-10% v/v squalene, 0.9% w/v PLURONIC-F68 block co-polymer, 1.9% w/v egg phosphatidyl choline, 1.75% v/v glycerol and 0.05% w/v α tocopherol.

34.(original) The composition of claim 27 wherein said carrier is a suspension comprising aluminum hydroxide, calcium hydroxide, calcium phosphate or tyrosine adsorbate.

35.(original) The composition of claim 27 wherein said carrier is an aqueous solution or aqueous micellar dispersion comprising triethylamine or triethanolamine.

36.(currently amended) The composition of claim 27 wherein said carrier comprises microspheres or microparticles, and the compound of claim 1 is within the matrix of the microspheres or microparticles or adsorbed thereon.

37. (new) The salt of claim 1 wherein R_1 , R_2 and R_3 are normal fatty acyl residues.

38. (new) The salt of claim 37 wherein R_1 , R_2 and R_3 are normal C_6 fatty acyl residues.

39. (new) The salt of claim 38 wherein R_6 is carboxy.

40. (new) The salt of claim 37 wherein at least one of R_1 , R_2 and R_3 is a normal C_6 fatty acyl residue and at least one other of R_1 , R_2 and R_3 is a normal C_{10} fatty acyl residue.

41. (new) The salt of claim 40 wherein R_1 , R_2 and R_3 are all selected from the group consisting of normal C_6 fatty acyl residues and normal C_{10} fatty acyl residues.

42. (new) The salt of claim 41 wherein R_6 is carboxy.

43. (new) The salt of claim 37 wherein R_1 , R_2 and R_3 are normal C_{10} fatty acyl residues.

44 (new) The salt of claim 43 wherein R_6 is carboxy.

45. (new) The salt of claim 37 wherein R_1 , R_2 and R_3 are normal C_{14} fatty acyl residues.

46. (new) The salt of claim 45 wherein R_6 is carboxy.

47. (new) The salt of claim 2 wherein X is O; Y is O; n, m, p and q are 0; R_1 , R_2 and R_3 are normal fatty acyl residues having 6 carbon atoms; R_4 , R_5 and R_7 are H; R_8 is phosphono; R_9 is H; R_1 , R_2 and R_3 are each attached to a stereogenic center having an *R* configuration; and R_5 is attached to a stereogenic center having an *S* configuration.

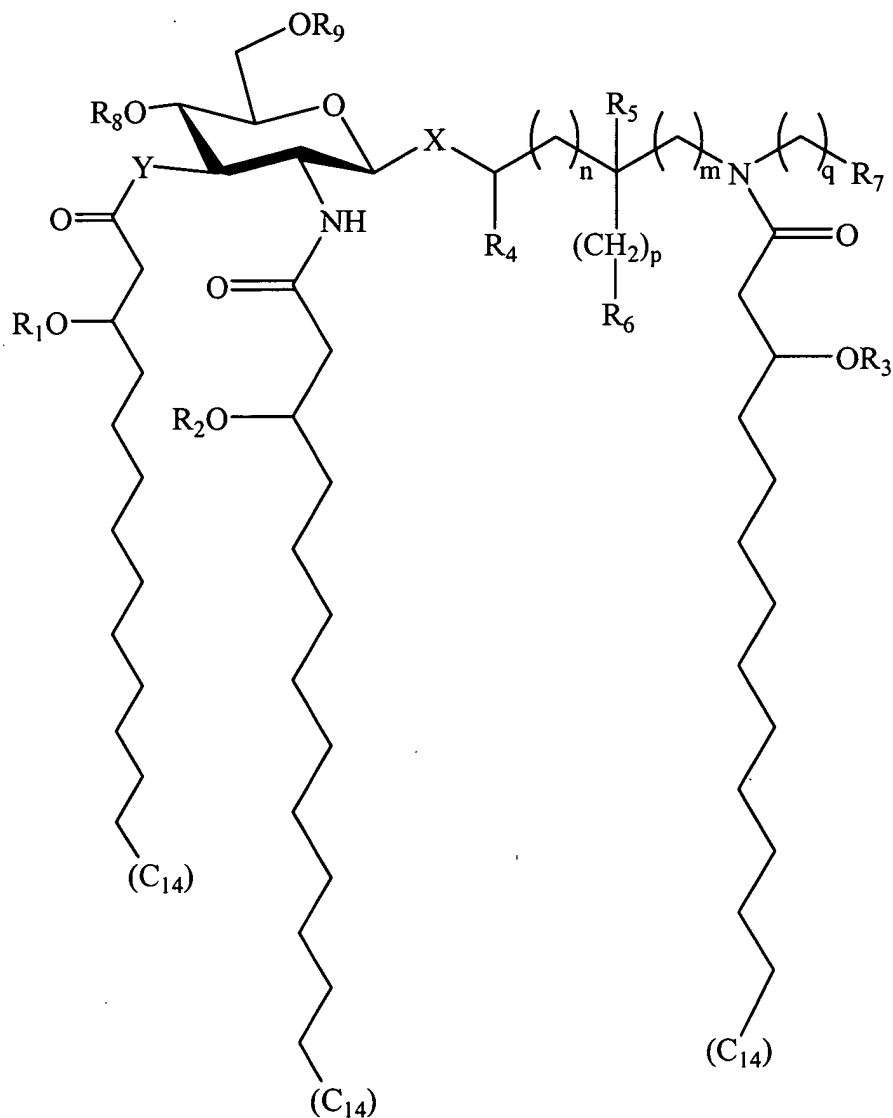
48. (new) The salt of claim 1 wherein said salt is a lyophilized salt.

49. (new) The salt of claim 1 wherein said salt is a triethylammonium salt.

50. (new) The composition of claim 27 wherein said composition is a solid composition.

51. (new) The composition of claim 27 wherein the carrier is a solid carrier.

52. (new) A solid composition comprising a compound having the formula:



wherein, X is selected from the group consisting of O and S at the axial or ~~equatorial~~ equatorial position; Y is selected from the group consisting of O and NH; n, m, p and q are integers from 0 to 6; R₁, R₂ and R₃ are the same or different and are ~~normal~~ fatty acyl residues having from 1 to about 20 carbon atoms and where one of R₁, R₂ or R₃ is optionally hydrogen; R₄ and R₅ are the same or different and are selected from the group consisting of H and methyl; R₆ and R₇ are the same or different and are selected from the group consisting of H, hydroxy, alkoxy, phosphono,

Appl. No. 09/905,160
Amdt. dated July 11, 2003
Reply to Office Action of March 24, 2003

PATENT

phosphonooxy, sulfo, sulfooxy, amino, mercapto, cyano, nitro, formyl and carboxy, and esters and amides thereof; and R_8 and R_9 are the same or different and are selected from the group consisting of phosphono and H, and at least one of R_8 and R_9 is phosphono; and a pharmaceutically acceptable carrier.

Booncl'd

53. (new)

A composition according to claim 52 in which the carrier is a solid

carrier.